

REMARKS

This amendment is filed along with a Request for Continued Examination. This application is amended in a manner to place it in condition for allowance at the time of the next Official Action.

Claims 27 and 40 are amended. Support for the amended claims may be found, for example, in paragraphs 27 and 65 of the original specification.

Claims 27-49 remain pending in the application.

Claims 27-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over KIRJAVAINEN WO 2001/19596 (KIRJAVAINEN) in view of LEE et al. WO 2001/72885 (LEE), as evidenced by POSS Molecules product literature. This rejection is respectfully traversed.

KIRJAVAINEN discloses a method and apparatus for making a plastic film and a plastic film produced according to the method. A cavitation agent is mixed into the plastic material. The cavitation agent makes cavities in the plastic material when the plastic film is stretched. The cavities are further expanded by gas. KIRJAVAINEN discloses that the filling material can be calcium carbonate or some oily substance. However, KIRJAVAINEN fails to disclose or suggest adding a POS(S) chemical as the cavitation agent.

LEE discloses that POSS chemicals have to be in a nanosized form in the polymer. (See, e.g., page 8, 1st paragraph,

four last lines.) Without the nanosized form the reinforcement effect is not achieved. LEE further discloses that the POSS chemicals are prevented from forming agglomerated domains, and that agglomeration of particulate fillers has been a problem that has traditionally plagued compounders and molders. See, e.g., page 8 of LEE, 2nd paragraph.

Thus, LEE fails to disclose or suggest an agglomerated POSS chemical, such as an agglomerate having diameters in the range of 1 to 5 μm as recited in independent claims 27 and 40, and LEE implicitly teaches away from micro-sized agglomerates in general for being harmful or ineffective.

LEE also fails to disclose or suggest that POS(S) chemicals could be used as a cavitation agent and that POS(S) chemicals make a porous film structure that can be electrically charged.

The position of the Official Action is that LEE teaches that the affinity/compatibility of POSS chemicals can be tailored, e.g., on page 8 of LEE. Additionally, the Official Action states that the tailoring disclosed by LEE makes it possible to tailor POSS chemicals "to a desired degree of incompatibility, which would allow the joint surface of the plastic and the POSS to tear when the plastic is stretched, forming the cavitation bubbles".

However, this conclusion is not true at all.

As LEE discloses on page 8, one can tailor POSS chemicals so that one may selectively reinforce the polymer.

This is also discussed in the POSS Molecules product literature cited in the Official Action. The literature describes how POSS is able to bond to organic molecules and each other forming chains, and how these chains act like nanoscale reinforcing fibers (page 1, 2nd paragraph). No micro-sized agglomerates are taught, disclosed or suggested as a target.

Furthermore, the POSS Molecules product literature, e.g., at page 2, 2nd paragraph, teaches that the advantages and benefits of POSS chemicals are a directed result of its nanoscopic size. Again, like LEE, this literature teaches away from the claimed invention wherein at least part of the POSS chemical is in micro-sized agglomerates.

Thus, in view of both LEE and the POSS Molecules product literature, one of ordinary skill in the art would have been strongly discouraged from modifying KIRJAVAINEN to include micro-sized POSS chemical agglomerates as recited in independent claims 27 and 40, as one would have expected inferior results without nanoscopic sizes.

Indeed, even if one were to combine the publications as suggested in the Official Action, the combination fails to teach the claimed invention, as none of the cited publications teach utilizing the micro-sized agglomerates, e.g., of 1 to 5 μm in diameter, in a porous film forming method.

Applicants, however, have determined that POSS chemical agglomerates have an important role in nucleating cavities in the polymer structure. Without the micro-sized POSS agglomerates, e.g., when only nanosized POSS is present as suggested by LEE and the POSS Molecules product literature, there is no cavitation. That is, reinforcing fibers of nanoscopic size cannot serve as nucleators for pores to form a porous film as claimed.

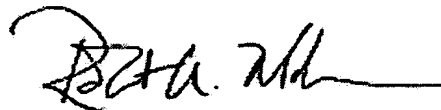
Therefore, the proposed combination cannot render obvious the claimed invention, and withdrawal of the rejection is respectfully requested.

In view of the present amendment to the claims and the foregoing remarks, the present application is in condition for allowance at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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